

**Fall 2007 Math 476 - Differential Topology**  
**Homework 5 - Homotopy, mod 2 Degree**  
**Due: 19/11/2007**

1. This question investigates if spheres are simply connected.
  - (a) Guillemin&Pollack, p38, q6
  - (b) Guillemin&Pollack, p45, q6
  - (c) Guillemin&Pollack, p83, q7
  
2. Let  $X$  be a manifold in  $\mathbb{R}^n$  which bounds a compact manifold  $D \subset \mathbb{R}^n$ . Let  $F : D \rightarrow \mathbb{R}^n$  be the inclusion map. Prove the theorem in Guillemin&Pollack, p87, following the three steps suggested there.